

# Conventional Deterrence After Arms Control

GARY L. GUERTNER

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**T**he credibility of NATO's conventional forces will be determined by its weapon modernization programs in combination with the outcome of the Conventional Forces in Europe Negotiations (CFE) which began in March 1989. Despite Gorbachev's unilateral reductions which preceded the formal negotiations and despite the general conciliatory tone of Soviet diplomacy, difficult negotiations lay ahead in Vienna for the 23 members of NATO and the Warsaw Pact assembled to test the Soviet commitment to "new military thinking."

As Americans undertake conventional arms control negotiations with their NATO allies, two "centers of gravity," one political and one military, will be critical. The political center of gravity is the cohesion of the NATO alliance. This has been a primary target of Soviet diplomacy. Arms control and conventional modernization decisions must be made within the broader objective of maintaining alliance cohesion. Without a united Western front, there is no possibility for credible conventional deterrence in Europe.

NATO's political center of gravity is the foundation on which the alliance has fielded military power sufficient to threaten the Soviet military center of gravity in Europe, that is, the ability of the Soviet army to maintain offensive momentum on the battlefield. War or political intimidation as a means to attain Soviet political objectives requires the potential for surprise attack and rapid military victory. Protracted conflict or stalemate on the battlefield poses serious threats to the cohesion of the Warsaw Pact. Unreliable allies may begin to question the cost-benefits of war, just as the Romanians did during World War II. Their divisions fought with the Germans as

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far as Stalingrad. But when the fortunes of war turned and the Red Army reached Romanian soil, they joined with it to crush the Nazis. Similarly, in a stalemate, Soviet leaders have good reason to fear that national strategies for survival among their East European allies would prevail over Soviet political objectives.

There are other risks. Long and vulnerable supply lines between the West European front and Soviet industrial centers would be difficult to maintain at levels required to meet the rapacious logistical appetites of mechanized divisions and their supporting firepower. There is also the risk that protracted war may set off the centrifugal forces of nationalism among Soviet minorities, especially those in the politically strategic union republics contiguous to Eastern Europe. These are the intertwined political-military dimensions of strategy that contribute to Soviet self-deterrence if confronted by credible NATO conventional defenses.

Conventional arms control and modernization programs can shape a strategic environment that further degrades Soviet capacity for momentum and quick military victory. The inherent advantage of the attacker in gaining the initiative over the defender must be reversed before Western interests are secure. The growing lethality of NATO's conventional forces and Gorbachev's new military thinking in the form of nonoffensive defense make this possible for the first time in postwar Europe.

NATO's broad objective is to achieve stable deterrence by denying Warsaw Pact capabilities for short-warning attack; the embodiment of that threat is, of course, the Soviet armored divisions and artillery. These, Philip Karber has argued, are "the root of military instability in Europe."<sup>1</sup>

This broad objective can be pursued through a two-front arms control strategy; one to reduce offensive structure and a second to restrict operational capabilities. Structure and capabilities are distinct components of conventional forces. They are the critical variables of conventional arms control. Operational capabilities are the activities of military forces in the field, including training exercises and troop concentrations that can be observed and monitored. On-site observations of training exercises are already in practice as the

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Dr. Gary L. Guertner is the Director of Studies in the US Army War College's Strategic Studies Institute. He is a former Professor of Strategy in the Department of National Security and Strategy at the War College. He holds B.A. and M.A. degrees in political science from the University of Arizona and a Ph.D. in international relations from the Claremont Graduate School. A former Marine Corps officer and veteran of Vietnam, Dr. Guertner has also served as a resident scholar at the US Arms Control and Disarmament Agency and as a professor of political science at the University of California, Fullerton. His latest book is *Deterrence and Defense in a Post-Nuclear World* (St. Martin's, 1989).

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result of the Conference on Security and Confidence-Building Measures and Disarmament in Europe (CDE).<sup>2</sup> Under its provisions, the exchange of military observers provides the framework for an expanded conventional arms control verification regime. Supported by national technical means for monitoring Soviet troop movements, on-site observers promote the transparency of Warsaw Pact territory that is required to decrease the probability of a successful surprise attack. On-site observations and inspections require equal progress in reductions and modifications of Soviet forces in Europe. Several Western negotiating strategies have been proposed:

- Disproportionate reductions in primary weapon systems where one side has a numerical advantage;
- Equal percentage reductions of total forces;
- Reductions in nonequivalent systems (for example, Soviet tanks for NATO aircraft);
- Creation of weapon-free zones or partially demilitarized zones; and
- Redeployment of forces.<sup>3</sup>

The immediate obstacle common to all negotiating strategies is disagreement over the data base from which negotiators begin their efforts to reshape the military balance in Europe. On the eve of the negotiations, *Pravda* published the Soviet Union's most detailed estimates of the conventional balance in Europe. Soviet data reinforce their claim that a rough parity exists between East and West.<sup>4</sup> Discrepancies between NATO and Warsaw Pact data are explained by different weapon aggregations and counting rules which threaten to deadlock negotiations if either side insists on a narrow bean-counting approach. Several key examples are summarized in Figure 1.

There is virtually no prospect for conventional arms control if negotiations become mired in disputes and mutual recriminations over the military balance. A treaty does not require meticulous calibration of opposing forces to achieve mutual security. Domestic political factions and public opinion may be reassured by the appearance of balance and equality, but no historical data exist to support a relationship between military parity and the absence of aggression.<sup>5</sup> Other factors are more important in achieving credible conventional deterrence against the primary Soviet center of gravity in Europe—capability for surprise attack and momentum on the battlefield culminating in a quick victory.

This article makes no attempt to summarize the burgeoning literature on conventional arms control. There are, however, two critical questions being discussed within the literature that demand answers: What is conventional stability? and How should it be linked to nuclear weapons and NATO's strategy of flexible response?

In the broadest sense, conventional stability like deterrence in general is a political-military posture that preserves NATO's political cohesion while

### **Figure 1. The Conflicting Data Base for NATO and Warsaw Pact Conventional Forces**

#### **Ground Forces:**

Soviet figures claim rough parity with 3.5 million Warsaw Pact soldiers facing 3.6 million NATO troops. Soviet data include naval forces, but exclude most support or construction units. NATO excludes naval forces, but counts most Soviet construction troops and claims a Warsaw Pact advantage of 3.1 million to 2.2 million troops.

#### **Tanks:**

Soviet data concede a Warsaw Pact advantage of 2:1 in total number of tanks (59,470 to 30,699). NATO claims a 3:1 Soviet advantage (51,500 to 16,424). The Soviets count all tanks—heavy, light, light amphibious. NATO figures include only heavy, main battle tanks.

#### **Artillery:**

NATO figures include only heavy artillery (100mm and over). Soviet forces have these weapons in great abundance to support ground forces. By contrast, NATO has far fewer of these weapons, but large numbers of smaller (below 100mm) weapons that are organic to its ground forces. Soviet data include all artillery regardless of caliber (down to 75mm artillery and 50mm mortars).

#### **Combat Aircraft:**

The Soviets insist that NATO has a 1.5:1 advantage in front-line ground attack aircraft. This contrasts with NATO estimates of a 2:1 Warsaw Pact advantage. The discrepancy is explained by Soviet inclusion of NATO's naval aviation able to fight from carrier battle groups in the European theater, and by Soviet definition of ground attack aircraft as "offensive" and fighter interceptor aircraft as "defensive." The Soviet definitions ignore multirole aircraft, exclude Soviet medium-range bombers, and oversimplify the offensive-defensive capabilities of tactical aircraft.

threatening the Soviet military center of gravity in Europe. This requires careful coordination of arms-control-mandated reductions and modernization of conventional forces that will remain to deter war in central Europe.

Gorbachev's incentive for arms control can be seen in the sheer size of his army. As the largest conventional force in the world, it is both militarily impressive and economically stifling. The investment required to maintain and modernize it at current levels makes it impossible for Gorbachev to execute his economic restructuring and domestic reforms. The scope of the problem can be seen in the diversion of resources since the Khrushchev era. At the time of his removal, he bequeathed Brezhnev a force structure of approximately three million men supported by 35,000 tanks, including 26 divisions deployed on foreign soil. Two decades later Gorbachev inherited a

military force of 5.5 million men supported by more than 50,000 tanks, with 40 divisions stationed outside Soviet territory.<sup>6</sup>

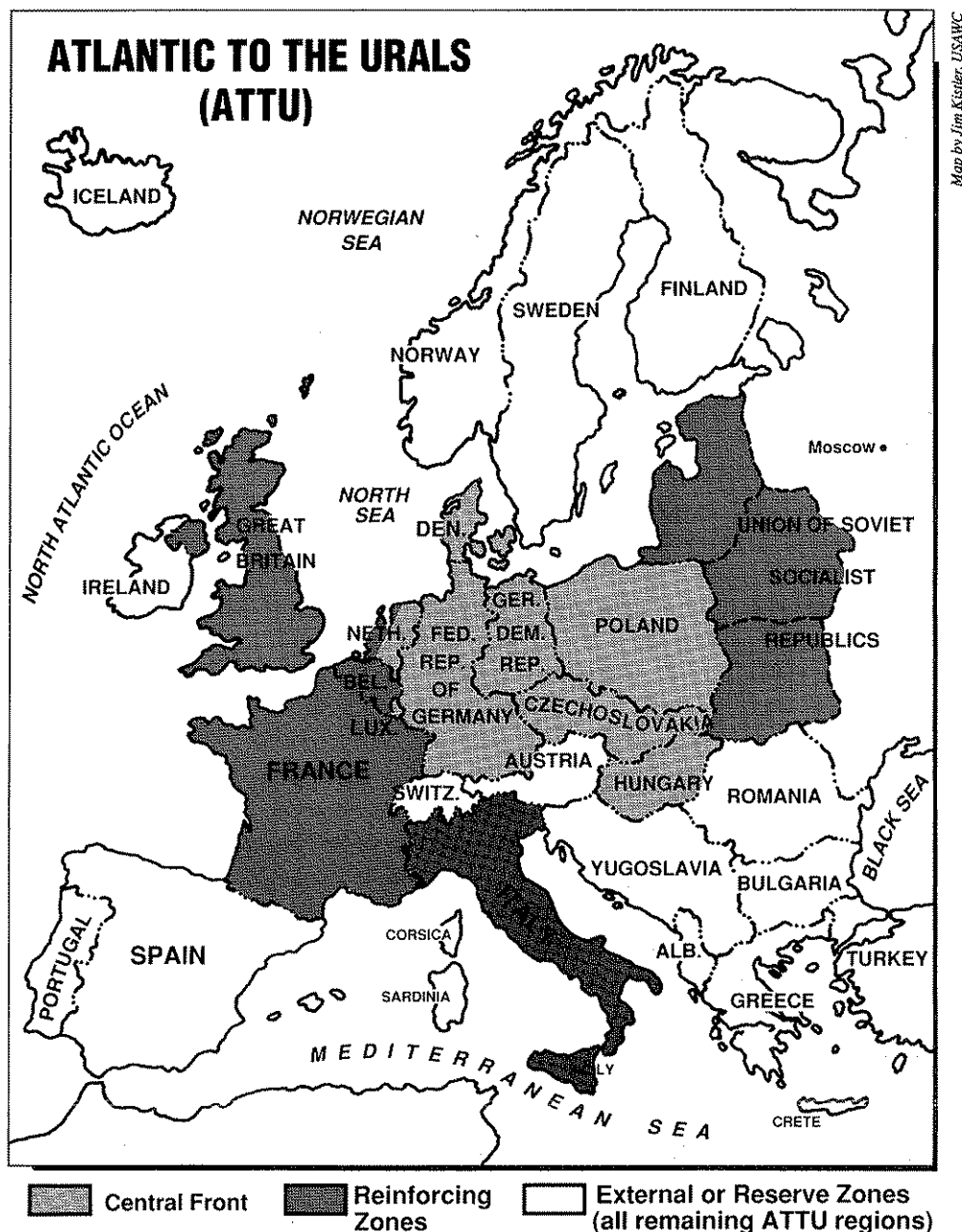
There is considerable justification for disproportionate reductions on the Soviet side. Senator Sam Nunn, Democratic chairman of the Senate Armed Services Committee, proposed a strategy that has the appearance of political equality but produces disproportionate reductions in Soviet military forces. Nunn favors a 50-percent reduction of the forward-deployed forces of both superpowers (two-plus US divisions from West Germany for 13-plus Soviet divisions from Eastern Europe). Withdrawn forces would be redeployed to locations that require equal time to return to their forward positions, thus compensating the United States for its geographic disadvantages.<sup>7</sup>

Senator Nunn's proposal highlights the importance of geography to the negotiations. The vast region to be covered by negotiated reductions—from the Atlantic to the Ural Mountains (ATTU)—and the Soviet advantage of proximity create challenges that cannot be solved by disproportionate force reductions. One approach is to divide the region by subzones that are each addressed by specific arms control requirements and by unique NATO force modernization requirements. The NATO Plan and the prestigious and often prescient Soviet Academy of Sciences have both proposed to divide the ATTU region into three zones (see map): the central front, a middle or reinforcing zone, and an external or reserve zone.<sup>8</sup> For each zone "parity" is defined in terms of percentage reductions, much like the Nunn proposal, that place the greatest burden on the side with superiority in a given category of weapons. Significantly, aircraft are included only in the total ATTU region because their range and flexibility do not facilitate constraints in narrow geographic areas.

The Nunn proposal and its unofficial Soviet Academy of Sciences counterpart are both more ambitious than the opening NATO position in Vienna. Western negotiators seek parity at ten percent below NATO levels in the most offensively adapted weapons—tanks, artillery, and armored personnel carriers. Neither the United States nor the Soviet Union would be permitted to deploy more than 30 percent of these totals (3200 tanks and 1700 artillery pieces) in any one allied country.

The official Soviet proposal was remarkably similar in its approach to initial reductions, but was more ambitious in its scope and long-term objectives. Soviet negotiators opened with a three-stage proposal: (1) a two-to three-year period during which both sides would reduce offensive weapons to levels 10-15 percent below the lowest level possessed by either side. The largest reductions were proposed for the two Germanies, where there would be a total ban on nuclear weapons; (2) a second three-year phase would reduce arms by an additional 25 percent; (3) the final stage lasting to the year 2000 would have both alliances restructuring their forces for "purely" defensive capabilities.<sup>9</sup>

The Soviet proposal is significant for both arms control and NATO conventional modernization strategy. The devil and years of negotiations are in the details, but a final arms control and verification regime must not only reduce instability along the central front, but also in the reinforcing zone



where forces could be deployed for rapid reinforcement of a surprise attack. Force levels in one zone may be determined to some degree by the ultimate disposition of men and weapons that are removed from another. Will, for example, Soviet troops and divisions be removed from the force structure? Will their weapons and equipment be stored west of the Urals or east of the Urals, or be destroyed? The vague outline of nonoffensive defense has not addressed these specific problems. In anticipation of lengthy negotiations on these and other questions, NATO conventional force modernization should proceed. Many decisions can be made and a considerable degree of modernization precede a conventional arms treaty.

Options described here are not intended to be taken as narrow prescriptions or as criticisms of either side's proposals at the negotiations. There are many possible variants to general principles. One approach, summarized in Figure 2, is to link modernization strategy to arms control zones such as those depicted in the map. Modernization in the central front zone should support conventional strategy and develop maximum firepower and mobility per unit of manpower. Credible conventional deterrence and alternative defensive concepts are needed to exploit Soviet force reductions through maximum deployment of wide-area, high-tech submunitions deliverable from the new Multiple Launch Rocket System (MLRS), aircraft, and the Army's short-range tactical missile system (ATACMS).

These systems, together with other forces deployed during the Reagan buildup (M1 tanks, Bradley fighting vehicles, Black Hawk helicopters, and Patriot air defense missiles), more than double the firepower of every American division. "Brilliant" munitions in development and emerging technologies (lasers and kinetic energy weapons) promise, as Marshal Ogarkov predicted, to give conventional forces on the defensive the same degree of lethality as battlefield nuclear weapons.<sup>10</sup>

NATO's theater nuclear weapons have been necessary to threaten critical targets deep in Eastern Europe. Airfields and the rail transshipment points along the Soviet-East European border are especially vital to sustain Soviet military momentum. Rail transshipment points are the bottlenecks created by Soviet construction of tracks that are broader than their European counterparts, an anomaly that requires off-loading Soviet trains and reloading cargoes on European trains. Broad-gauged rails have been erroneously described as an intentional strategic measure to hinder an invasion of Russia. In fact, however, the original recommendation was made by an American technical adviser to the Tsar as the most cost-effective means to support high-volume rolling stock and to ensure stability at high speed. Ironically, the Russian Civil War and World War II demonstrated that while variations in rail gauges did slow the logistical support of rapidly advancing military forces, it



**Figure 2. NATO Strategy After Conventional Arms Control**

<b>Zone</b>	<b>Modernization Strategy</b>	<b>Deterrence Strategy</b>
Central Front	Conventional Forces; "Smart Munitions" with Wide Area Coverage	Conventional Deterrence
Deep Central Front	Maintain Existing Theater Nuclear Force; Long-Term R&D for Long-Range Conventional Forces	Flexible Response without Requirement for Nuclear First Use
Reinforcing Zone	Strategic Nuclear Modernization with More Emphasis on Survivable Weapons, Less Emphasis on Hard Target Counter- force Capabilities	Strategic Nuclear Deterrence
Reserve Zone		Flexible Options to Attack Soviet Conventional Forces in the Reinforcing Zone
Continental US		Deter Soviet Use of Strategic and Theater Nuclear Weapons

was easier for invaders from the West to narrow Russian track (by re-laying one rail) than for the Russians to widen European track.<sup>11</sup>

These self-imposed bottlenecks and the long, fixed rail routes through the Soviet Union make their reinforcement of Europe no less arduous than Western defense of sea-lanes, ports, and NATO airfields. A long-range research and development program should be pursued to put these Soviet choke points at risk with conventional weapons. Early use of nuclear weapons on or near the Soviet border in support of AirLand Battle is a potential escalator that may result in political indecisiveness and dangerous delays in striking critical targets. Under such conditions, conventional deterrence is more credible than nuclear deterrence.

The most divisive decision confronting NATO is the modernization of short-range nuclear forces for the European battlefield. The last ground-to-ground nuclear missile, the Lance, will be phased out in the 1990s. The Bush Administration seeks approval of a program to modernize its arsenal of short-range nuclear weapons. The options include: (1) a new ground-launched missile with a range just under the 300-mile ceiling established by the INF Treaty; (2) a new air-launched missile similar to the Short-Range Attack

Missile (SRAM), an air-to-surface missile carried by strategic nuclear bombers; and (3) continued production of modernized nuclear artillery shells.<sup>12</sup>

It is unlikely that either Congress or NATO allies will support full development or deployment of these systems. There is strong political opposition in West Germany along with growing support for triple zero—the elimination of all remaining nuclear weapons on the central front. German political rhetoric is illustrative of the problem: the shorter the range of the weapon, the deader the Germans.

Conventional arms control negotiations could be seriously disrupted by a divisive debate within NATO over nuclear modernization. The debate puts the horse before the cart in the sense that the general outcome of an arms control treaty and conventional force modernization should precede a final decision on new nuclear weapons. Reductions of Soviet armored and mechanized divisions and NATO conventional modernization may serve the same strategy that theater nuclear forces once served, that is, to put at risk any Warsaw Pact forces that mass for an attack along the central front. If conventional modernization produces weapons capable of lethality over the breadth and depth of the battlefield in support of NATO's forward defense and AirLand Battle doctrine, the case for nuclear modernization is significantly weakened.

The primary deficiency in current programs is the short range of conventional weapons. They have the lethality to disrupt a Soviet attack, but they lack the range to fully supplement air strikes against Soviet second echelons. Arms control may succeed in reducing these threats, while political will can produce long-range, lethal conventional weapons. Current munitions for the Army's MLRS have a range of 45 kilometers. The new ATACMS will extend that to well over 100 kilometers, coinciding with the 50-150 kilometers prescribed by AirLand Battle doctrine to engage Soviet second echelons. The trade-off between conventional and nuclear modernization should be weighed against both the military requirements for disrupting Soviet momentum on the battlefield and the political requirements for NATO's cohesion. It is by no means clear that nuclear modernization is the best means for accomplishing either objective.

A warning by former German Chancellor Helmut Schmidt is instructive. Schmidt wrote that he had confidence in conventional defenses, even though

... the strategy of flexible response has always implied a quick escalation toward very early first use of nuclear weapons by the West. But it is unrealistic to believe that West German soldiers would fight after the explosions of the first couple of nuclear weapons on West German soil; the West Germans would certainly not act anymore fanatically or suicidally than the Japanese did in 1945 after Hiroshima and Nagasaki.<sup>13</sup>

It is difficult to find a more eloquent argument for conventional deterrence in central Europe. Schmidt concluded that nuclear weapons are valuable only to deter Soviet nuclear use, not as instruments to deter limited war or even large-scale conventional attack.

Antinuclear sentiment has reached a peak under Chancellor Helmut Kohl and Foreign Minister Hans-Dietrich Gensher. Domestic politics in the Federal Republic makes it impossible to modernize short-range nuclear forces (SNF) outside formal Soviet-American negotiations to limit their numbers in the European theater. Veteran US arms control negotiator Paul Nitze endorsed the German position. He recommended formal negotiations on SNF to achieve a balance in a category of weapons in which the Soviets are dominant and to avoid exacerbating political divisions in Germany at a time of growing impatience with the extraordinary concentration of foreign armies and weapons on their soil.<sup>14</sup>

Political pressure from the Germans resulted in a compromise similar to the Nitze proposal. President Bush's broad arms control offensive at the 40th NATO anniversary summit in Brussels opened the door to a compromise solution to the SNF issue.<sup>15</sup> In their joint communique of 31 May 1989, NATO heads of state reaffirmed their commitment to a "strategy of deterrence based upon an appropriate mix of adequate and effective nuclear and conventional forces." At the same time, the allies stipulated that "negotiated reductions leading to a level below the existing level of their SNF missiles will not be carried out until the results of these negotiations (CFE) have been implemented."<sup>16</sup> The compromise language rules out for the immediate future the "triple zero" option preferred by the Germans.<sup>17</sup>

The problem that hangs over the negotiations, however, is the extent to which the Soviets will continue to press the Germans on the issue of SNF. The Soviets' German strategy is tied to the broader objective of a denuclearized Europe (i.e. removal of all land-based systems, including dual-capable aircraft). The strategy exploits German fears of "singularization," the term used to describe the German geographic predicament of being the battlefield for a majority of nuclear weapons that were not eliminated by the INF Treaty (Lance missiles and artillery nuclear projectiles). The fact that these weapons are "German killers" (in the geographic sense) is a source of great discomfort to our most important NATO ally, and no doubt a source of some cynical pleasure in the minds of Soviet strategists.

During a visit to Bonn soon after the signing of the INF Treaty, Soviet Foreign Minister Eduard Shevardnadze pressed his German hosts for their support of the Soviet "triple zero" proposal. Triple zero appeals to Germans wary of singularization, but it could result in a more credible Soviet conventional war option in Europe.<sup>18</sup> For that reason, neither the Reagan nor the Bush Administration has been willing to accept the triple zero option prior to firm

Soviet agreements on conventional reductions. Over the long term, however, German domestic politics may demand triple zero for land-based nuclear missiles and artillery.

**T**he remaining geographic zones can be defended with discriminate strategies and forces. NATO's northern and southern flanks (primarily Norway and Turkey) should, like the central front, depend on conventional deterrence that is decoupled from threats to set off a rapid chain of nuclear escalation. Strategy in the reinforcing zones—Great Britain, France, and Italy on the one side and the Soviet military districts adjacent to Eastern Europe on the other—should remain independent of conventional deterrence in the central zone. Deterrence in the reinforcing zones should rest unambiguously on theater and strategic nuclear forces. Escalation of war to these zones risks full-scale theater strategic war and must be deterred by the same levels of threat used to deter intercontinental nuclear war.

Linking arms control and conventional and strategic nuclear modernization to specific zones in the Atlantic to the Urals region does not mean that the US commitment to extended deterrence varies from one ally to another. The distinctions mean that conventional deterrence is possible far below the nuclear threshold.

Ironically, if negotiations produce a treaty, US conventional forces will become strategically more important. If their redeployment to the United States results in demobilization, conventional deterrence will be weakened. Total manpower may decline, but the number of army divisions (18 active and ten reserve) should be retained or even expanded through organizational devices similar to the Soviet practice of maintaining ground forces at various readiness levels. These categories range from full-strength, combat-ready divisions, to incompletely manned divisions with less than 50 percent of their required manpower, on down to small divisional custodial cadres for weapons and equipment. National mobilization and training are required to bring them to full strength, but even on paper they broadcast to the world a level of commitment and a corresponding component in the structure of deterrence.

Land power is unique in the level of national will and commitment it reflects. Naval and air power are certainly essential components in US defense posture and conventional deterrence, but they are also the symbols of limited commitment. They sooner lend themselves to the substitution of service-specific strategies—air power or maritime strategy—for national strategy. Land power, in contrast, is more closely identified with and dependent on national strategy because it is the symbol of the nation's highest commitment of military power short of nuclear weapons.<sup>19</sup> When the nation commits its army, the commitment is nearly always total, and the cost of failure far more damaging to national prestige.

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The Soviet problem is more economic than military. Soviet military forces must be reduced to finance economic reform. Skeptics in the West should not underestimate the risks this entails for Gorbachev. The Soviet Union depends disproportionately on its military might for superpower status. Previous Soviet leaders have assumed the convertibility of military assets to diplomatic, economic, and psychological gains consistent with Soviet desires to extend their influence. The size and sophistication of Soviet forces are the most visible product of industrial modernization. They convey the trappings of success. In Soviet eyes, respect and authority must certainly spill over to their political and ideological claims. Gorbachev is openly challenging these sacred assumptions. Security, he has argued, and by inference superpower status, cannot rest on military power alone. Political and economic cooperation with the West is an essential part of state security in the nuclear age. His recognition of the limited utility of military power is a giant step toward a credible conventional deterrent in Europe.

Yet Europe remains the most militarized zone in the world. There is growing fear among Europeans that preparations for war and the infrastructure of deterrence itself have become the greater threat. Mutual disengagement with disproportionate reductions on the Soviet side can reduce the political tensions that have persisted since two powerful allies met on the Elbe in 1945. The continued presence of American and Soviet armies in central Europe for more than 45 years after World War II is neither inevitable nor a natural part of international politics. Powerful allies in Western Europe and Gorbachev's revolutionary attempts to reform the Soviet Union are dramatic symbols of success for American postwar strategy in Europe. The challenge in the next century is learning how to live with that success.

#### NOTES

1. Philip A. Karber, "Conventional Arms Control, or Why Nunn is Better Than None," in *Conventional Arms Control and the Security of Europe*, ed. Uwe Nerlich and James A. Thompson (Boulder, Colo.: Westview Press, 1988), p. 174.

2. Delegates from the 35 members of the Conference on Security and Confidence-Building Measures and Disarmament in Europe (CDE) agreed on several on-site inspection provisions in 1986. NATO and Warsaw Pact military commanders may not train or exercise units in excess of 300 tanks or 13,000 personnel without prior notification. When exercises exceed 17,000 personnel, military representatives from the other side must be allowed on-site observation of the exercise. Under CDE provisions, American and British personnel have observed Warsaw Pact exercises in the Soviet Union, Hungary, and the German Democratic Republic. Soviet personnel have been present during NATO exercises in West Germany, Turkey, Norway, and Great Britain. See Don O. Stovall, "A Participant's View of On-Site Inspections," *Parameters*, 19 (June 1989), 2-17.
3. Michael Moodie, "Conventional Arms Control: An Analytical Survey of Recent Literature," *The Washington Quarterly*, 12 (Winter 1989), 189-201.
4. Bill Keller, "East Bloc Gives First Arms Tally," *The New York Times*, 31 January 1989, p. A6.
5. *Combat History Analysis Study Effort (CHASE)*, Progress Report, August 1986, Requirements and Resources Directorate, US Army Concepts Analysis Agency, pp. 3-20.
6. Philip A. Karber, "The Military Impact of the Gorbachev Reductions," *Armed Forces Journal International*, January 1989, pp. 54-64.
7. Sam Nunn, "NATO Challenges and Opportunities: A Three-Track Approach," *NATO Review*, 35 (June 1987), 1-7.
8. The Soviet zones are described by Oleg Amirov et al., "Conventional War: Strategic Concepts," *Disarmament and Security 1987 Yearbook* (Moscow: USSR Academy of Sciences, 1988), pp. 395-400. The NATO Plan is described in Tom Donnelly, "If Threat Ends, What Then?" *Army Times*, 8 May 1989, p. 16. The map with this article is derived from both proposals, which vary slightly in their zonal boundaries.
9. The initial proposals by NATO and the Warsaw Pact at the Conventional Forces in Europe Negotiations (CFE) are summarized in Peter Adams and Harold Briley, "Conventional Convergence in Vienna," *Defense News*, 13 March 1989, p. 1.
10. N. V. Ogarkov, "Reliable Defense to Peace," *Red Star*, 23 September 1983, p. 2; and "The Defense of Socialism: The Experience of History and the Present," *Red Star*, 9 May 1984, p. 3.
11. J. N. Westwood, *A History of Russian Railways* (London: Allen and Unwin, 1964), pp. 29-31 and 237-41. Soviet rails are gauged five feet apart. Their European counterparts are four feet, eight and a half inches. The three and a half inches have great strategic significance.
12. Michael R. Gordon, "NATO Looks to Newer, Fewer Arms," *The New York Times*, 19 April 1989, p. A8. See also Stephen S. Rosenfeld, "Nuclear Modernization: No Transition Hitch," *The Washington Post*, 3 February 1989, p. A25.
13. Helmut Schmidt, "The Zero Option: On Equilibrium in Arms Control," *Fort Worth Telegram and Star*, 3 May 1987, p. A43, reprinted in DOD, *Current News*, 15 July 1987, p. 11.
14. Michael R. Gordon, "Reagan Arms Adviser Says Bush Is Wrong on Short-Range Missiles," *The New York Times*, 3 May 1989, p. 1. Mr. Nitze's views were expressed in a press conference on his final day of service in the Bush Administration.
15. The President reversed American opposition to cutting aircraft and troop strength. He offered to bring 30,000 US troops home, leaving 275,000 in Europe, if the Soviets would reduce their European forces to an equal number. Troop cuts would be accompanied by a 15-percent cut below current NATO levels in all types of aircraft. R. W. Apple, Jr., "Bush Wins Backing for His Arms Plan from NATO Allies," *The New York Times*, 30 May 1989, p. 1.
16. "Joint Communiqué," *The New York Times*, 31 May 1989, p. A15.
17. A public opinion poll taken prior to the NATO summit found that 89.1 percent of those Germans questioned opposed American short-range nuclear weapons. Serge Schmemmann, "Bonn Reported Split on NATO Arms," *The New York Times*, 27 May 1989, p. 6.
18. German fears have been voiced on many occasions by Chancellor Helmut Kohl and members of his government. One advisor has suggested reducing warheads for battlefield nuclear weapons by 50 percent, with the majority of cuts coming from *short-range* nuclear artillery. The emphasis on short-range weapons illustrates German sensitivities on where the battlefield will be. See Robert J. McCartney, "Bonn Presses for NATO Agreement on Plans to Upgrade Nuclear Arms," *The Washington Post*, 27 February 1988, p. A13. For this reason, the Germans are unlikely to support Soviet calls for eliminating nuclear weapons carried on tactical aircraft. See the joint Soviet-Czechoslovak communiqué printed in FBIS, 15 April 1987, p. F20. It is also worth noting that "nonoffensive defense" is rooted in the German peace movement. For examples of literature from the German Peace Movement see *The Journal of Peace Research*, 24 (March 1987).
19. The author is grateful to Carl H. Builder for these interservice comparisons. See his *The Army in the Strategic Planning Process: Who Shall Bell the Cat?* (Santa Monica, Calif.: RAND, 1987), chaps. 3, 4, and 6.